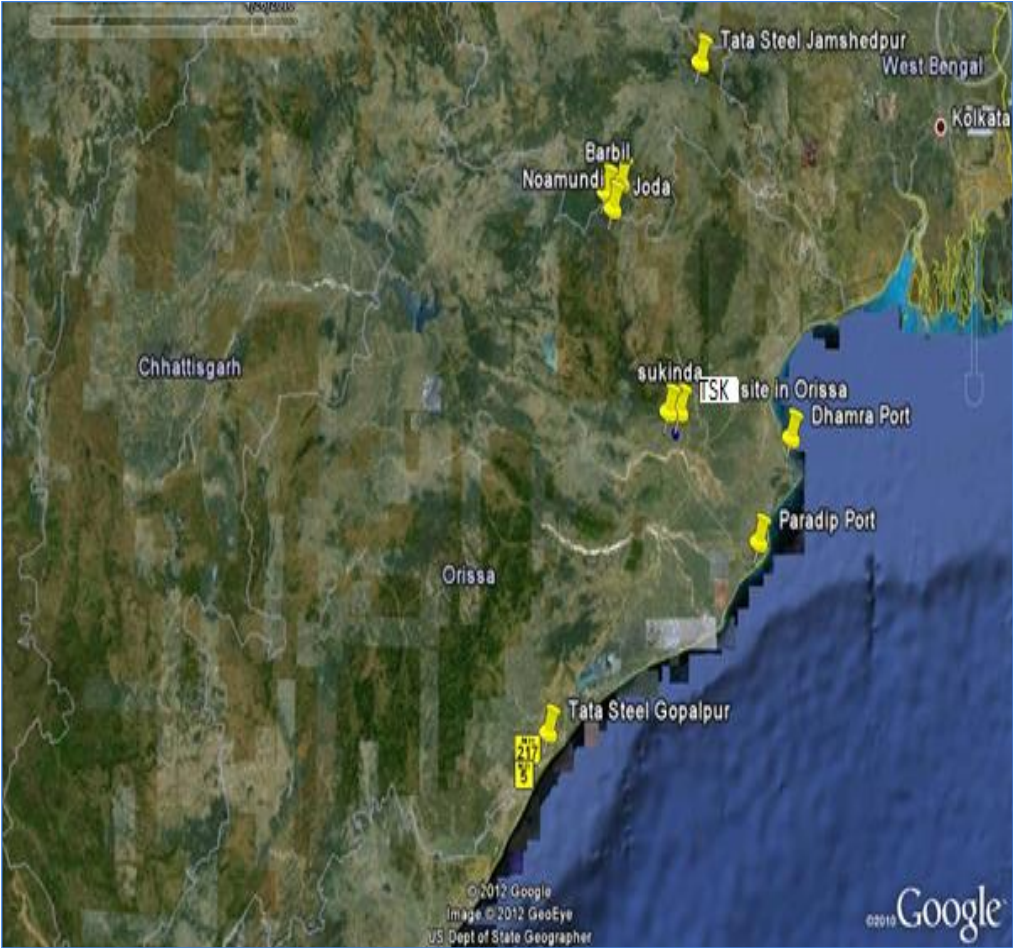
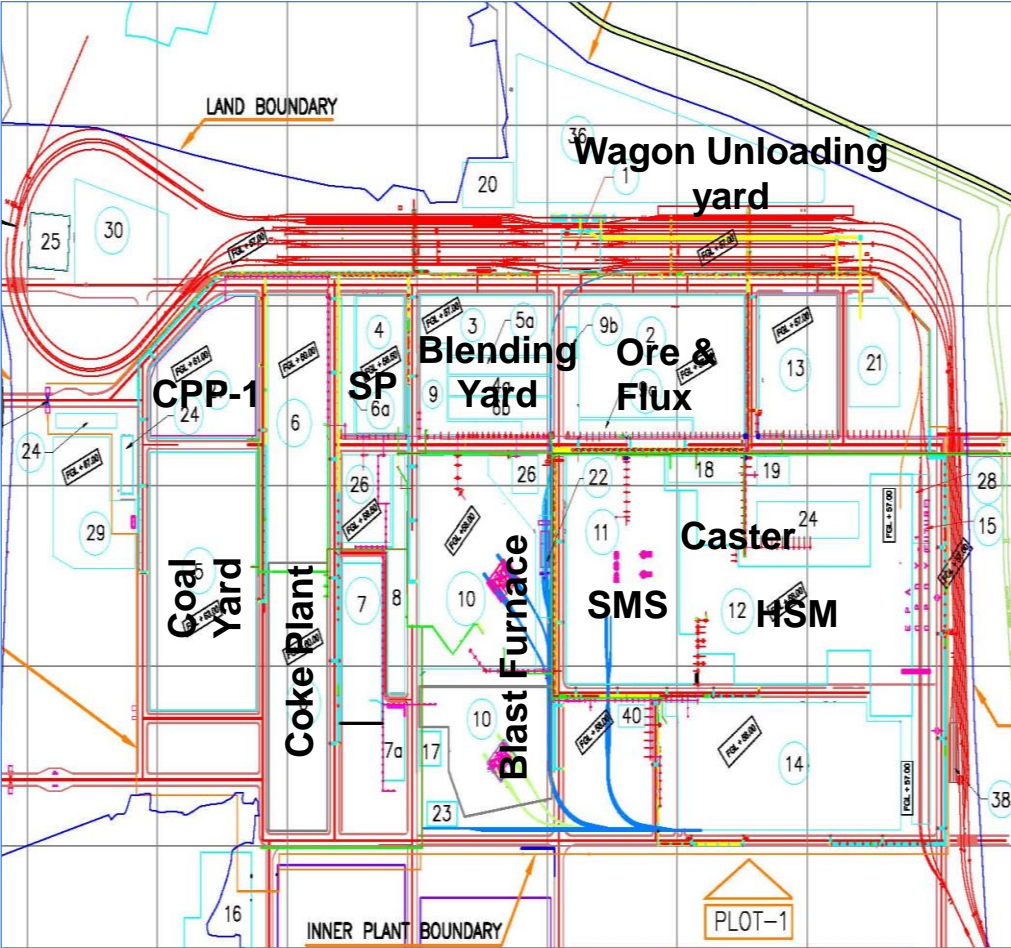


**Tata Steel India – Analyst Day 2017**  
**Kalinganagar | 6<sup>th</sup> October 2017**

*Statements in this presentation describing the Company's performance may be "forward looking statements" within the meaning of applicable securities laws and regulations. Actual results may differ materially from those directly or indirectly expressed, inferred or implied. Important factors that could make a difference to the Company's operations include, among others, economic conditions affecting demand/supply and price conditions in the domestic and overseas markets in which the Company operates, changes in or due to the environment, Government regulations, laws, statutes, judicial pronouncements and/or other incidental factors.*



- ✓ Optimal design to drive efficiency and meet sustainability benchmarks
- ✓ Improved cost competitiveness with higher employee productivity and operating KPIs driven by Automation
- ✓ Logistics advantage due to its proximity to the ports and captive Iron ore mines
- ✓ Expanding product range and customer -Capability to produce thicker, wider and high tensile strength steels with unique grades and tighter dimensional tolerances
- ✓ Current capacity is at 3mtpa with an option to scale up for future growth



Key facilities	Highlights
Coke Ovens	<ul style="list-style-type: none"> <li>✓ Capacity: 1.5mtpa (4x88 ovens)</li> <li>✓ Recovery type stamp charged ovens</li> <li>✓ Coke Dry Quenching – ~32 MW Power generation</li> </ul>
Agglomeration	<ul style="list-style-type: none"> <li>✓ Sinter plant: 5.75mtpa (1x496 m3)</li> </ul>
Large Capacity Blast Furnace	<ul style="list-style-type: none"> <li>✓ Capacity: 4mtpa (1 X 4330 m3)</li> <li>✓ Operating Efficiency – better productivity, lower fuel and slag rate</li> </ul>
Steel Melting Shop	<ul style="list-style-type: none"> <li>✓ CAS OB Technology – Energy Efficient</li> <li>✓ Twin Caster – Higher productivity</li> </ul>
Hot Strip Mill (HSM)	<ul style="list-style-type: none"> <li>✓ Capacity: 4mtpa, 2 strands roughing mill and 7 stands finishing mill</li> <li>✓ Width (800-2,050mm), Thickness (1.5-25mm), tensile strength up to 1,050MPa and coil weight up to 40 tons</li> <li>✓ High-end application products: HS 800, DP 600, DP 1000, API X70/X80 and S355, ASTM A572 (for Lifting &amp; Excavation segment)</li> </ul>
Power Sourcing	<ul style="list-style-type: none"> <li>✓ Current total requirement: ~200-210MW                             <ul style="list-style-type: none"> <li>▪ Captive power plant (CPP-1): ~90-100MW; by-product gas-based power</li> <li>▪ Top Gas Recovery Turbines: ~38MW</li> <li>▪ Rest from Grid or other power producers</li> </ul> </li> </ul>



**Base-mix Plant**



**Sinter Plant**



**CPP**



**Coke Oven**



**Blast Furnace**



**Steel Melting Shop**

## Currently serviced value added products/ segments

Products/ Segments	Market Size <sup>1</sup> (mn tons)	Market Share
HR Commercial	11.00	10%
LPG Cylinders	0.60	36%
Medium Carbon High Carbon	0.32	24%
Precision Tubes	0.50	10%
Railways	0.39	15%

## Value added products/ segments being targeted

Products/ Segments	Market Size <sup>1</sup> (mn tons)
Construction & Projects	3.40
Pre-engineered buildings	0.70
Oil & Gas	2.10
Lifting & Excavation	0.75
Shipbuilding	0.20

- ✓ Gained entry with Industry leaders in PEB segment
- ✓ Successful trials and commencement of supplies to global leaders in lifting & excavation segment
- ✓ Approvals from a leading Indian Oil marketing company for supply of API grade steel
- ✓ Established as a major player in the large dia water pipeline segment through Kalinganagar; enhancing presence in Construction Projects
- ✓ New segments will comprise ~30 % of TSK sales volumes at full ramp-up

<sup>1</sup> Based on FY15 market data

Key indicators	HSM at Kalinganagar	TSCR at Jamshedpur	HSM at Jamshedpur
Maximum thickness (in mm)	25	16	12
Width range (in mm)	800 – 2050	900 – 1680	860 - 1540
Maximum tensile strength (in MPa)	1200	600	450
Maximum special coil weight (in Kg/mm)	22	19.5	19

- ✓ **High end application products:** HS 800, DP 600, DP 1000, API X70/X80 and S355, ASTM A572 for L&E segment.
- ✓ **Higher W/T Ratio** ~ 30 – 50%
- ✓ **Width tolerance:** -0/+10 mm up to 1400 mm width & -0/+12 mm > 1400 mm width
- ✓ **Thickness tolerance:** +/- 36 to 48 micron max for 1.6 to 6.0 mm
- ✓ Defect Free Surface of hot rolled sheets with Surface Inspection system
- ✓ Uniform Properties in the whole coil due to Heat Cover Facility.

Products	Benefits
Development of high tensile Grade ASTM A572 Gr50 Type II/ EN 10025 S355 J2	✓ For Yellow Goods and Pre-engineered Building Customers: these new product with superior flatness suitable for laser cutting and plasma cutting processes at customer end has been developed through controlled cooling strategy in run out table of Hot Strip Mill
Development of high Ti bearing SPFH 590 steel with high stretch flange-ability	✓ For wheel rim applications: this new product has superior stretch flange-ability as compared to normal grade
Hi-end GWT - HS800, C45	✓ Structural Application for Chassis reinforcement in M&HCVs and LCVs
Thinner High Strength Steel IS2062 E350 Gr. A	✓ For Solar Panel Structural Members in Plain Carbon Chemistry: this new product has been established in thinner sections due to better GWT (Grade width and thickness) and cooling capability
SAE 1018, SAE1020, SAE 1026 Grades	✓ For tubes used in high end automotive applications: this products/grade for TPI has been developed using advanced caster at TSK



- ✓ Electrostatic Precipitators/ Bag Filters for dust control
- ✓ Water Spray/ dry fogging for other fugitive emissions control
- ✓ Desulphurization of Coke Oven Gas
- ✓ Zero Wastewater discharge concept – recycling/ water treatment
- ✓ Stove waste heat recovery and other By-product gas recovery: used for reheating furnaces and power generation driving energy efficiency
- ✓ Waste recycling/ reuse like mill scale and GCP sludge: reducing raw materials requirement, lower fuel requirement
- ✓ 33% Green Belt cover – maintain better air quality

Solid waste type	Disposal
Blast Furnace Slag	<ul style="list-style-type: none"> <li>✓ Cast House Slag Granulation System for Blast Furnace</li> <li>✓ ~ 95% granulated slag used for cement manufacture</li> <li>✓ Balance 5% would be used for road construction</li> </ul>
Basic Oxygen Furnace (BOF) Slag	<ul style="list-style-type: none"> <li>✓ Off-loaded to specialized agency for recovery of metallic and further processing</li> <li>✓ About 30% is recycled in steel plant and 50-60% is meant to be used as construction material, Railway ballast and soil conditioner</li> </ul>
Blast Furnace Flue dusts	<ul style="list-style-type: none"> <li>✓ Nearly 70-80% utilization within the plant, rest is temporarily stored for others</li> </ul>
GCP sludge	<ul style="list-style-type: none"> <li>✓ Recycled in Sinter Plant or temporarily stored for other users</li> </ul>
Mill Scales	<ul style="list-style-type: none"> <li>✓ 100% utilization within the plant</li> </ul>



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